PROJECT LICENSED PROFESSIONAL CERTIFICATES

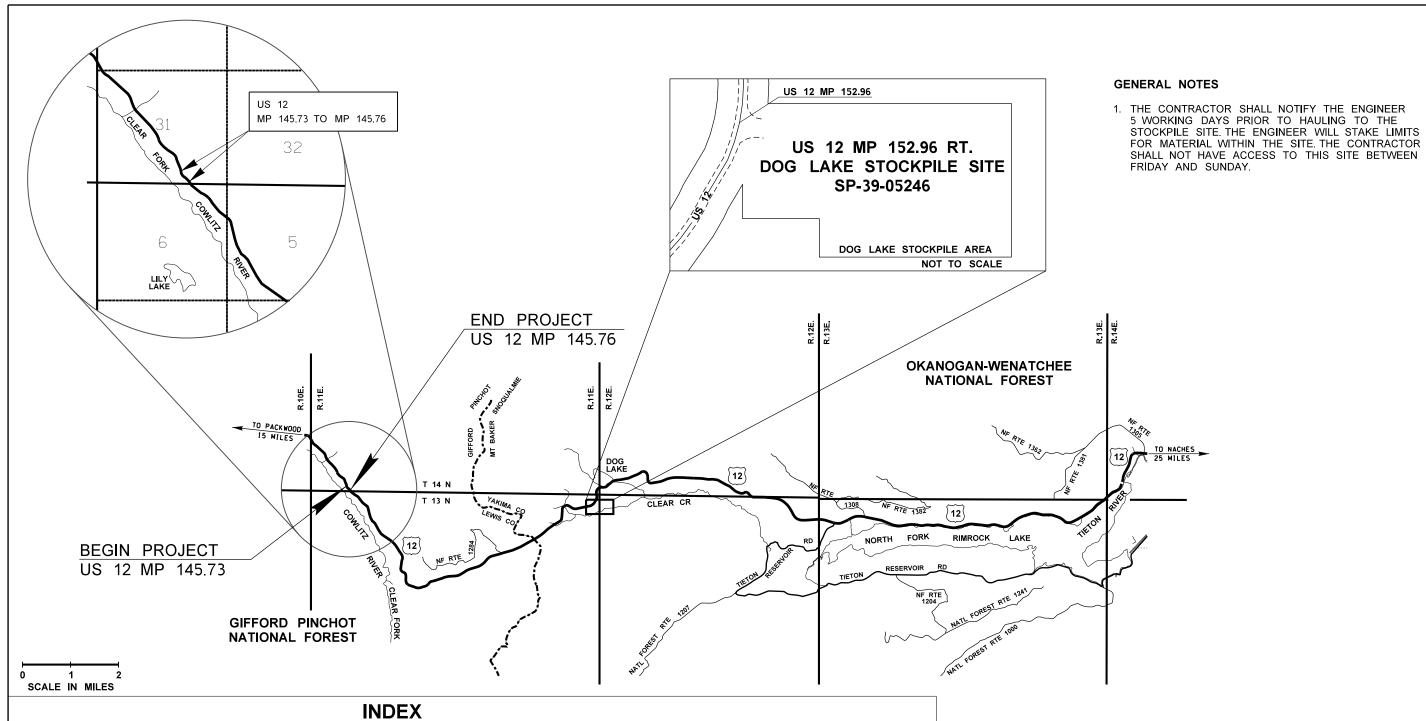
		Stephen D. Newman	Ouffuy D. Switt Geoffrey D. swett	
	Bob Hooker	Stephen D. Newman	Geoffrey D. swett	
	May 31, 2022	May 31, 2022	May 31, 2022	
- - (A PROFESSIONAL ENGINEER IN DIRECT RESPONSIBLE CHARGE DF DEVELOPING THIS CONTRACT, I CERTIFY THAT ALL PLANS HAT CONTAIN MY STAMP HAVE BEEN DEVELOPED UNDER MY SUPERVISION AS A LICENSED PROFESSIONAL.	AS A PROFESSIONAL ENGINEER IN DIRECT RESPONSIBLE CHARGE OF DEVELOPING THIS CONTRACT, I CERTIFY THAT ALL PLANS THAT CONTAIN MY STAMP HAVE BEEN DEVELOPED UNDER MY SUPERVISION AS A LICENSED PROFESSIONAL.	AS A PROFESSIONAL ENGINEER IN DIRECT RESPONSIBLE CHARGE OF DEVELOPING THIS CONTRACT, I CERTIFY THAT ALL PLANS THAT CONTAIN MY STAMP HAVE BEEN DEVELOPED UNDER MY SUPERVISION AS A LICENSED PROFESSIONAL.	AS A PROFESSIONAL ENGINEER IN DIRECT RESPONSIBLE CHARGE OF DEVELOPING THIS CONTRACT, I CERTIFY THAT ALL PLANS THAT CONTAIN MY STAMP HAVE BEEN DEVELOPED UNDER MY SUPERVISION AS A LICENSED PROFESSIONAL.
- - (A PROFESSIONAL ENGINEER IN DIRECT RESPONSIBLE CHARGE DF DEVELOPING THIS CONTRACT, I CERTIFY THAT ALL PLANS HAT CONTAIN MY STAMP HAVE BEEN DEVELOPED UNDER MY SUPERVISION AS A LICENSED PROFESSIONAL.	AS A PROFESSIONAL ENGINEER IN DIRECT RESPONSIBLE CHARGE OF DEVELOPING THIS CONTRACT, I CERTIFY THAT ALL PLANS THAT CONTAIN MY STAMP HAVE BEEN DEVELOPED UNDER MY SUPERVISION AS A LICENSED PROFESSIONAL.	AS A PROFESSIONAL ENGINEER IN DIRECT RESPONSIBLE CHARGE OF DEVELOPING THIS CONTRACT, I CERTIFY THAT ALL PLANS THAT CONTAIN MY STAMP HAVE BEEN DEVELOPED UNDER MY SUPERVISION AS A LICENSED PROFESSIONAL.	AS A PROFESSIONAL ENGINEER IN DIRECT RESPONSIBLE CHARGE OF DEVELOPING THIS CONTRACT, I CERTIFY THAT ALL PLANS THAT CONTAIN MY STAMP HAVE BEEN DEVELOPED UNDER MY SUPERVISION AS A LICENSED PROFESSIONAL.
- - (A PROFESSIONAL ENGINEER IN DIRECT RESPONSIBLE CHARGE OF DEVELOPING THIS CONTRACT, I CERTIFY THAT ALL PLANS HAT CONTAIN MY STAMP HAVE BEEN DEVELOPED UNDER MY SUPERVISION AS A LICENSED PROFESSIONAL.	AS A PROFESSIONAL ENGINEER IN DIRECT RESPONSIBLE CHARGE OF DEVELOPING THIS CONTRACT, I CERTIFY THAT ALL PLANS THAT CONTAIN MY STAMP HAVE BEEN DEVELOPED UNDER MY SUPERVISION AS A LICENSED PROFESSIONAL.	AS A PROFESSIONAL ENGINEER IN DIRECT RESPONSIBLE CHARGE OF DEVELOPING THIS CONTRACT, I CERTIFY THAT ALL PLANS THAT CONTAIN MY STAMP HAVE BEEN DEVELOPED UNDER MY SUPERVISION AS A LICENSED PROFESSIONAL.	AS A PROFESSIONAL ENGINEER IN DIRECT RESPONSIBLE CHARGE OF DEVELOPING THIS CONTRACT, I CERTIFY THAT ALL PLANS THAT CONTAIN MY STAMP HAVE BEEN DEVELOPED UNDER MY SUPERVISION AS A LICENSED PROFESSIONAL.

NOTES:

THIS PLAN SET WAS DEVELOPED ELECTRONICALLY UNDER THE DIRECT SUPERVISION OF THE LICENSED PROFESSIONALS THAT HAVE AFFIXED THEIR STAMPS TO THIS PAGE.

THIS SHEET SERVES AS THE CERTIFICATION BY THE ABOVE LICENSED PROFESSIONALS OF ALL SHEETS IN THIS PLAN SET WHERE THEIR STAMP AND SIGNATURE APPEAR.

FILE NAME	K:\452205\012\US12_Rock Slop	e Net Repair\Design_CAD_Sheets\015-CertificationShe	eet\XL6374_CEF	RTIFIC	ATION_SHEET	'.dgn					Plot 1
TIME	2:40:36 PM				REGION STATE	FED.AID PROJ.NO.				US 12	PLAN REF NO
DATE	5/16/2022				10 WASI	1					CT1
PLOTTED BY	kolzowa				IU WASI	1				WEST OF WHITE PASS	"
DESIGNED BY	A. KOLZOW				JOB NUMBER	1			Washington State	REPAIR CABLE NET POST	SHEET
ENTERED BY	A. KOLZOW				22Y015					KEFAIK CABLE NET FOST	1
CHECKED BY	J. TRUDEAU				CONTRACT NO.	LOCATION NO.			Department of Transportation		OF
PROJ. ENGR.	B. HOOKER						——————————————————————————————————————	——————————————————————————————————————	-	CERTIFICATION SHEET	15 SHEETS
REGIONAL ADM.	T. TREPANIER	REVISION	DATE	BY			P.E. STAMP BOX	P.E. STAMP BOX		SERTIFICATION SHEET	SHEETS



SHEET NO.	REFERENCE	TITLE	SHEET NO.	REFERENCE	TITLE
1	CT1	CERTIFICATION SHEET	9	MSP4	MODIFIED CABLE NET SLOPE PROTECTION SYSTEM DETAILS
2	V1	VICINITY MAP/STOCKPILE/INDEX	10	MSP5	MODIFIED CABLE NET SLOPE PROTECTION SYSTEM DETAILS
3	501	SUMMARY OF QUANTITIES	11	MSP6	MODIFIED CABLE NET SLOPE PROTECTION SYSTEM DETAILS
4	GRD1	STRAW BALE GUARDRAIL/TESC	12	TC1	CONSTRUCTION SIGNS CLASS A
5	MCN1	MODIFIED CABLE NET POST LAYOUT	13	TC2	TRAFFIC CONTROL PLAN
6	MSP1	MODIFIED CABLE NET SLOPE PROTECTION SYSTEM DETAILS	14	TC3	TRAFFIC CONTROL PLAN
7	MSP2	MODIFIED CABLE NET SLOPE PROTECTION SYSTEM DETAILS	15	TC4	TRAFFIC CONTROL PLAN
8	MSP3	MODIFIED CABLE NET SLOPE PROTECTION SYSTEM DETAILS			

FILE NAME	K:\452205\012\0512_Rock Sio	pe Net Repair(Design_CAD_Sneets\020-vicinity\XL63/4_i	² 5_vwu1.agn				
TIME	11:47:05 AM				REGION NO.	STATE	FED.AID PROJ.NO.
DATE	5/26/2022					WASH	
PLOTTED BY	thomasb				10	WASH	
DESIGNED BY	T. RUTSCHILLING					NUMBER	
ENTERED BY	A. KOLZOW				22Y	015	
CHECKED BY	J. TRUDEAU				CONTR	RACT NO.	LOCATION NO.
PROJ. ENGR.	B. HOOKER						
REGIONAL ADM.	T. TREPANIER	REVISION	DATE	BY			

Washington State
Department of Transportation

DATE

DATE

US 12									
WEST OF WHITE PASS									
REPAIR CABLE NET POST									
VICINITY MAP / STOCKPILE / INDEX									

Plot 1
PLAN REF NO
V1

15 SHEETS

DOT_RGG900

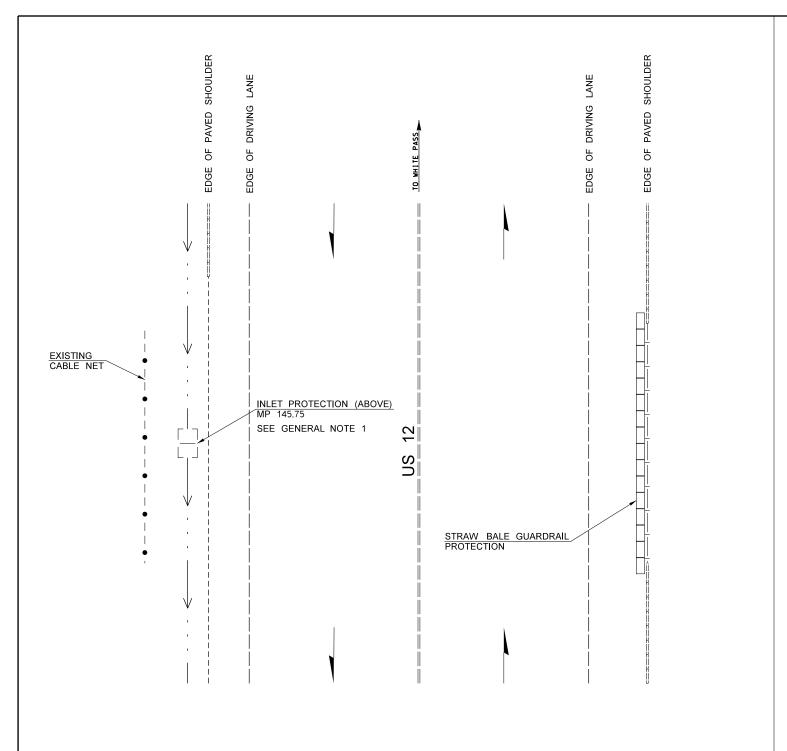
5/31/2022

SUMMARY OF QUANTITIES

		SUB-ŢOTAL	CLID TOTAL				1	1	1	1		1	1	1	1	1	1	1	1		
		*	SUB-TOTAL				GROUP 1	GROUP 2													
ITEM	TOTAL	SECTION	SECTION	STD.			US 12	THIRD												.	.
NO	QUANTITY	I-07.2(1) OF	I-07.2(2) OF	ITEM NO.	UNIT	ITEM	MP 145.73 TO 145.76	PARTY DAMAGES													
	Q0/111111	STANDARD	STANDARD	110.			10 145.76	DAMAGES												.	.
		SPECS	SPECS																	.	.
				j j		PREPARATION		İ	ĺ			ĺ		ĺ		İ					
1	LUMP SUM		LUMP SUM	0001	L.S.	MOBILIZATION	L.S.		1					1		1					
							ji .		1					1		1					
						GRADING	JI						1		1	1					
2	8.00		8.00	0380	CRHR	ROCK SLOPE SCALING	8.00		1					1		1					
3	100.00		100.00	0390	C.Y.	ROCK SLOPE SCALING DEBRIS REMOVAL INCL. HAUL	100.00														
]						1		1	1	1				
						EROSION CONTROL AND ROADSIDE PLANTING			1	1			1	1	1		1				. 1
4	LUMP SUM		LUMP SUM	6488	L.S.	EROSION CONTROL AND WATER POLLUTION PREVENTION	L.S.		1	1			1	1	1	1					
									1	1		I	1	1	1	1					
						TRAFFIC			1	1			1	1	1		1				
5	800.00		800.00	6920	HR	AUTOMATED FLAGGER ASSISTANCE DEVICE	800.00		1				1	1	1						
6	800.00		800.00	6993	HR	PORTABLE CHANGEABLE MESSAGE SIGN	800.00		1	1			1	1							
7	LUMP SUM		LUMP SUM	6971	L.S.	PROJECT TEMPORARY TRAFFIC CONTROL	L.S.	1	1	1			1	1	1	1	1				
8	48.00		48.00	6982	S.F.	CONSTRUCTION SIGNS CLASS A	48.00	1	1	1			1	1	1	1	1				
							JI	1	1	1			1	1	1	1	1				
						OTHER ITEMS	JI	1	1	1			1	1	1	1	1				
9	LUMP SUM		LUMP SUM		L.S.	MODIFIED CABLE NET SLOPE PROTECTION SYSTEM	L.S.	1	1	1			1	1	1	1	1				
10	7500.00		7500.00		DOL	GROUT EXCEEDANCE	7,500.00						1		1						
11	100.00	1	100.00		EACH	STRAW BALE - GUARDRAIL PROTECTION	100.00			1			1				1				
12	5000.00		5000.00	7480	DOL	ROADSIDE CLEANUP	5,000.00						1		1		1				
13	5.00		5.00	7725	DOL	REIMBURSEMENT FOR THIRD PARTY DAMAGE		5.00		1			1				1				
14	-1.00		-1.00	7728	DOL	MINOR CHANGE	-1.00			1		Ī	1	1							
15	LUMP SUM		LUMP SUM	7736	L.S.	SPCC PLAN	L.S.							1							
																				<u>_</u>	
											•										

GROUP	GROUP NUMBER	SR	CONTROL SECTION	TAX SCHEDULE	FUND PARTICIPANTS
LEGEND	1	012	210600	**	STATE MVA
	2	012	210600	**	STATE 3 PARTY

		RE	GION STATE	FEDERAL AID PROJECT. NO.		110.40	SQ1
			10 WA			US 12	3001
					Washington State	WEST OF WHITE PASS-	SHEET
			JOB NUMBER		Department of Transportation	REPAIR CABLE NET POST	3
			22Y015/2		Bopartmont of Transportation		OF
			CONTRACT NO			SUMMARY OF QUANTITIES	15
DATE	REVISION	BY	000000				SHEETS



TESC PLAN

GENERAL NOTES

- 1. PLACE SANDBAGS AND METAL PLATE OVER DRAINAGE INLET TO PROTECT FROM DAMAGE DURING CONSTRUCTION. SEE ABOVE INLET GRATE IN 8-01.3(9)D.
- 2. TWO STACKED STRAW BALES SEE SPECIAL PROVISION "STRAW BALE GUARDRAIL PROTECTION".

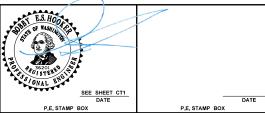
GONDONS GANANAN EXISTING WARLES 2-4" VARIES 2-4" EXISTING ROADWAY 12' VARIES 6'-8 EXISTING ROADWAY

GUARDRAIL PROTECTION DETAIL

SLOPE	MP	STRAW BALES (EA)
2756	145.75	100

NOT TO SCALE

FILE NAME	K:\452205\012\US12_Rock Slo	pe Net Repair\Design_CAD_Sheets\020-Vicinity\XL6374_F	PS_VM01.dgn					Ι
TIME	11:40:40 AM				REGION NO.	STATE	FED.AID PROJ.NO.	1
DATE	5/26/2022					WASH		I.
PLOTTED BY	thomasb				יי ן	WASH		K
DESIGNED BY	T. RUTSCHILLING					IUMBER		13
ENTERED BY	A. KOLZOW				22Y	015		ı
CHECKED BY	J. TRUDEAU				CONTR	RACT NO.	LOCATION NO.	1
PROJ. ENGR.	B. HOOKER							ı
REGIONAL ADM.	T. TREPANIER	REVISION	DATE	BY	1			П





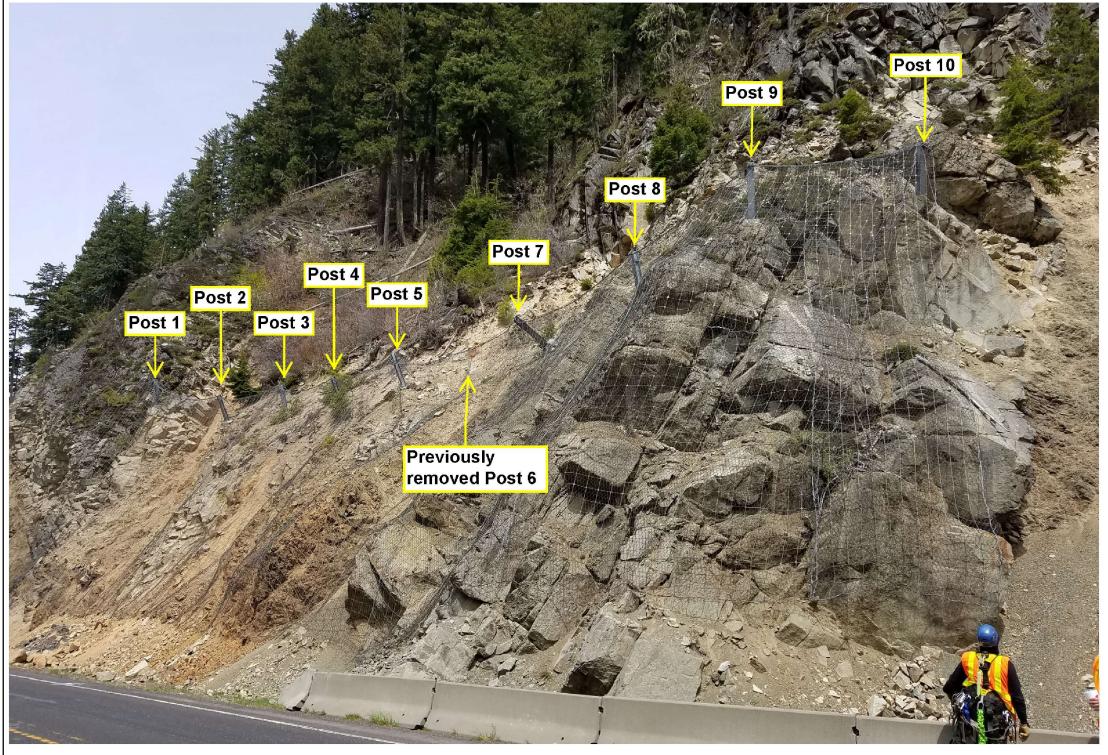
US 12
WEST OF WHITE PASS
REPAIR CABLE NET POST

STRAW BALE GUARDRAIL / TESC

SHEET
4
OF
15
SHEETS

Plot 3

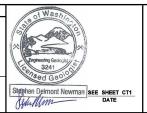
PLAN REF NO



GENERAL NOTES

- 1. NEW MODIFIED CABLE NET POSTS SHALL BE INSTALLED ADJACENT TO EACH OF THE EXISTING POSTS 2, 3, 4, 5 AND 7, AND ONE NEW MODIFIED CABLE NET POST SHALL BE INSTALLED ADJACENT TO THE LOCATION OF THE PREVIOUSLY REMOVED POST 6. EXISTING POSTS 1, 8, 9 AND 10 SHALL REMAIN IN PLACE ON THE SLOPE. EXISTING POSTS 2, 3, 4, 5 AND 7 SHALL BE REMOVED FROM THE SLOPE DURING CONSTRUCTION.
- THE LIMITS OF SAFETY SCALING SHALL BE IN THE IMMEDIATE VICINITY OF THE PROPOSED NEW POST FOUNDATIONS, SUBJECT TO UNFORESEEN HAZARD BLOCKS.

FILE NAME	K:\452205\012\US12_Rock Slop	pe Net Repair\Design_CAD_Sheets\020-Vicinity\XL6374_F	PS_MCN1.dgn				
TIME	3:03:01 PM				REGION NO.	STATE	FED.AID PROJ.NO.
DATE	5/16/2022					WASH	
PLOTTED BY	kolzowa				10	WASH	
DESIGNED BY	T. RUTSCHILLING					IUMBER	
ENTERED BY	A. KOLZOW				22Y	015	
CHECKED BY	J. TRUDEAU				CONTR	RACT NO.	LOCATION NO.
PROJ. ENGR.	B. HOOKER						
REGIONAL ADM.	T. TREPANIER	REVISION	DATE	BY			





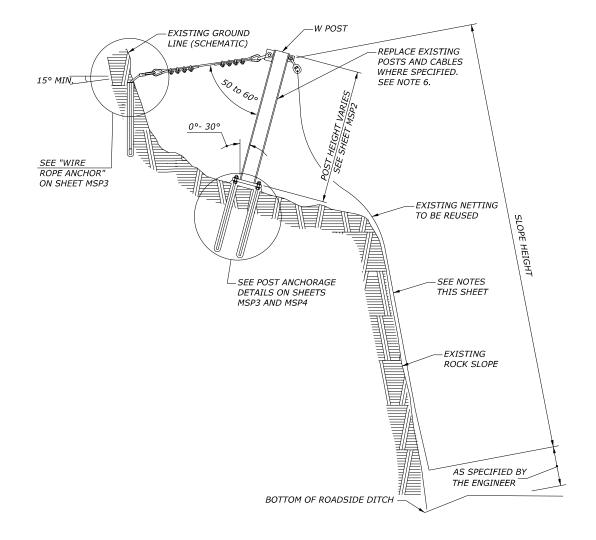
US 12 WEST OF WHITE PASS REPAIR CABLE NET POST

MODIFIED CABLE NET POST LAYOUT

SHEET
5
OF
15
SHEETS

Plot 1

MCN1



GENERAL NOTES

- 1. ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION DATED 2022.
- 2. THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE ASCE/SEI 7-05 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES, 2005.
- 3. SEE SPECIAL PROVISIONS FOR ELEMENTS ON SHEETS MSP1 MSP6 APPLICABLE FOR THE CONTRACT
- 4. ULTIMATE ROPE ANCHOR CAPACITY PER TABLE ON SHEET MSP2.
- 5. ALL WIRE ROPE LOOPS SHALL INCLUDE A STANDARD WEIGHT THIMBLE.
- 6. POSTS SHALL BE REPLACED WITH CONTRACTING AGENCY SUPPLIED POSTS.
- 7. THE FALLING ROCK LOAD USED IN THE DESIGN IS EQUAL TO 1.7 KIP/FT APPLIED OVER THE MIDDLE 4 FT OF THE NETTING SUPPORT ROPE. THAT LOAD CORRESPONDS TO 100 FT-TON MAXIMUM IMPACT ENERGY.
- 8. THE DESIGN ICE LOAD USED ON THE MESH IS 5.7 PSF.

FIL	E NAME	C:\Users\ChurcC\OneDrive	- WashIngton	State Departn	nent of Transpor	tation\Desktop\T	YPE 2 N	NETTING	SLOP	PROTE	CTION DETAIL	.S.dgn	
BRI	IDGE DES E	NG. Khaleghl, B.							REGIO	STATE	FED.AID	PROJ.NO.	1
BRI	IDGE PROJ. I	ENG. Rosa, M.								WASH	1		
SU	PERVISOR	Zeldenrust, R.								VVASI			1
DES	SIGNED BY	Swett, G.								NUMBER			U
EN.	TERED BY	Churchill, C.							 22 `	Y015			1 1
СНІ	ECKED BY	Dobrev, B.							CON	TRACT NO.	LOCAT	ION NO.	1
PR	OJ. ENGR.	Hooker, B.											
REC	GIONAL ADM	. Trepanier, T.		R	EVISION		DATI	Е В	Υ				





US 12 WEST OF WHITE PASS REPAIR CABLE NET POST Plot 1

PLAN REF NO MSP1

15 SHEETS

MODIFIED CABLE NET SLOPE PROTECTION SYSTEM DETAILS

TIME: 1:17:33 PMPLOTTED BY ChurcC

DATE

END AND CONNECTION POSTS

GL ODE	END & CONNEC	CTION POSTS ^{1,2}	POST	T ANCHORAGI	Ē		NETTING SUPPORT ROPE CONNECTIO				SIDE ROPES CONNECTION				
SLOPE HEIGHT	HEIGHT	SIZE	PLATE A	WELD ΑΦ	WELD Aω	ROPE B 3	PLATE B 4	HOLE B (DIA.)	WELD B	SWIVEL B 5	ROPE C	PLATE C	HOLE C (DIA.)	WELD C	
	6'	W 8 x 40													
100'	12'	W 8 x 40	34 x 16 x 1'-4	7/ ₁₆	1/4	3/4"	1 x 4 x 0'-6	11⁄4"	1/2	1	3/4"	½ x 4 x 0'-7	1 3/4"	5∕ ₁₆	
	20'	W 8 x 48													
	6'	W 8 x 48	1 x 16 x 1'-4	% ₁₆								$\frac{3}{4} \times 4\frac{1}{2} \times 0'-7$			
200'	12'	W 8 x 48	1 x 16 x 1'-4	7∕ ₁₆	1/4	1"	1½ x 4 ¾ x 0′-6	1½"	% ₁₆	11⁄4	1"	$\frac{3}{4} \times 4\frac{1}{2} \times 0^{1}-7$	21/8"	5/16	
	20'	W 10 x 49	1 x 18 x 1'-6	7∕ ₁₆								3/4 x 41/2 x 0'-83/4			
	6'	W 8 x 58	1¼ x 16 x 1'-4	3/4								⁷ / ₈ x 5 x 0'-7			
300'	12'	W 10 x 54	1¼ x 18 x 1'-6	1/2	5∕ ₁₆	1 1/8"	1¾ x 7½ x 0′-9	2¾"	% ₁₆	11⁄2	11/8"	⅓ x 5 x 0'-8¾	2¾"	1/2	
	20'	W 10 x 60	1¼ x 18 x 1'-6	7/ ₁₆								⅓ x 5 x 0'-8¾			

WASH

LOCATION NO.

JOB NUMBER

22Y015

DATE

BY

INTERMEDIATE POSTS

CLORE	INTERMEDIA	TE POSTS ^{1,2}	POS	T ANCHORAG	E	NETTING SUPPORT ROPE CONNECTION							
SLOPE HEIGHT	HEIGHT	SIZE	PLATE D	WELD DΦ	WELD Dω	ROPE B 3	PLATE E	HOLE E (DIA.)	WELD E	SWIVEL E 5			
	6'												
100'	12'	W 8 x 35	3/4 x 16 x 1'-4	5∕ ₁₆	1/4	3/4"	½ x 3 x 0′-3½	1"	5∕ ₁₆	7/8			
	20'												
	6'		1 x 16 x 1'-4										
200'	12'	W 8 x 35	1 x 16 x 1'-4	⁵ / ₁₆	1/4	1"	34 x 3½ x 0′-4½	11/4"	7/ ₁₆	1			
	20'		1 x 18 x 1'-6										
	6'		1¼ x 16 x 1'-4										
300'	12'	W 8 x 48	1¼ x 18 x 1'-6	<i>⁵</i> ⁄16	1/4	11/8"	1 x 4 x 0'-5	1½"	1/2	11/4			
	20'		1¼ x 18 x 1'-6										

REVISION

ChurcC

SUPERVISOR

ENTERED BY

CHECKED BY

PROJ. ENGR.

REGIONAL ADM.

DATE:5/18/2022

DESIGNED BY

Zeldenrust, R.

Swett, G.

Churchill,

Dobrev, B.

Hooker, B.

Trepanier, T.

TIME: 1:17:35 PMPLOTTED BY

ULTIMATE ROPE ANCHOR CAPACITY 6,7

OLITIMATE NOTE ANCHOR CAFACITY								
C/ 0.05	CAPACITY (KIPS)							
SLOPE DISTANCE	ROPE B ROPE C (PER ROPE)		ROPE F (PER ROPE)					
100'	58	32	18					
200'	103	57	27					
300'	130	72	37					

NOTES:

- 1. MAXIMUM SPACING BETWEEN POSTS 40 FT.
- 2. POSTS SHALL BE ALIGNED WITH 15° MAXIMUM HORIZONTAL DEFLECTION ANGLE AND 30° MAXIMUM VERTICAL DEFLECTION ANGLE.
- 3. MAXIMUM NETTING SUPPORT ROPE LENGTH 160 FT. (I.E. 4 POST SPACINGS AT 40 FT.). NETTING SUPPORT ROPE SHALL BE TERMINATED AT A CONNECTION OR END POST.
- 4. CLIP THE LOWER CORNER OF PLATE B BY 1¾" (SEE DETAILS ON SHEET MSP5).
- 5. ALL SWIVELS SHALL BE JAW END TYPE.
- 6. FOR ROPE B DOUBLE ANCHORS WITH INDIVIDUAL TAG LINES MAY BE USED AS AN ALTERNATIVE TO A SINGLE ANCHOR IN ORDER TO ACHIEVE THE REQUIRED CAPACITY. THE ANGLE BETWEEN A TAG LINE AND THE AXIS OF THE CORRESPONDING ANCHOR SHALL BE LESS THAN 30°. ANCHORS AND TAG LINES SHALL HAVE A MINIMUM OF 60% OF THE REQUIRED CAPACITY FOR A SINGLE ANCHOR.

WEST OF WHITE PASS

REPAIR CABLE NET POST

MODIFIED CABLE NET SLOPE PROTECTION SYSTEM DETAILS

Washington State

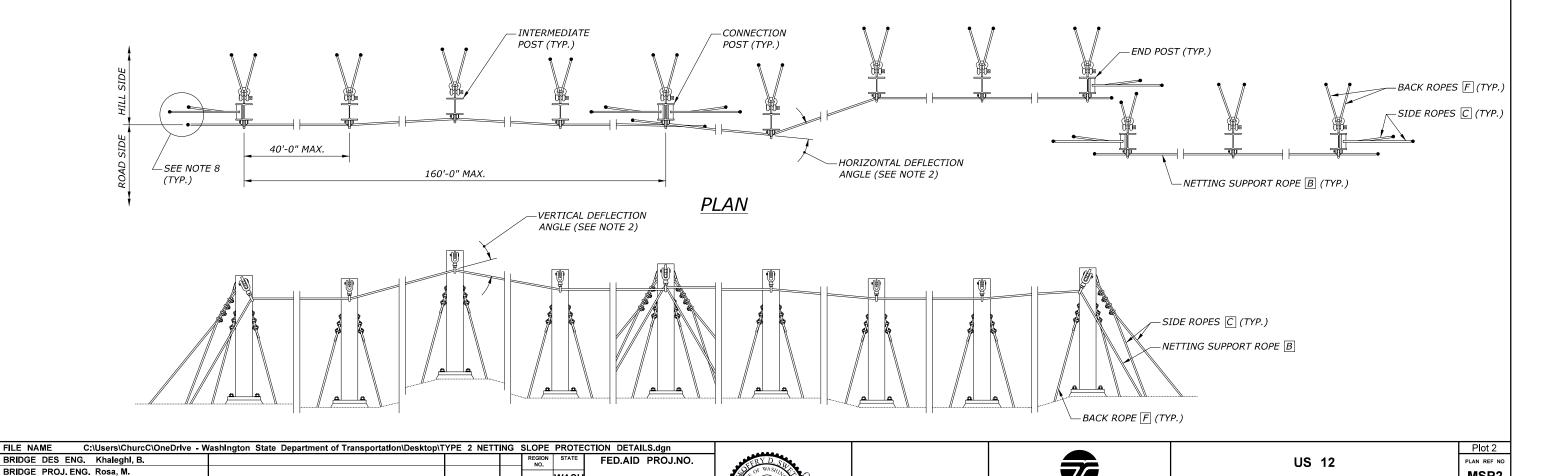
Department of Transportation

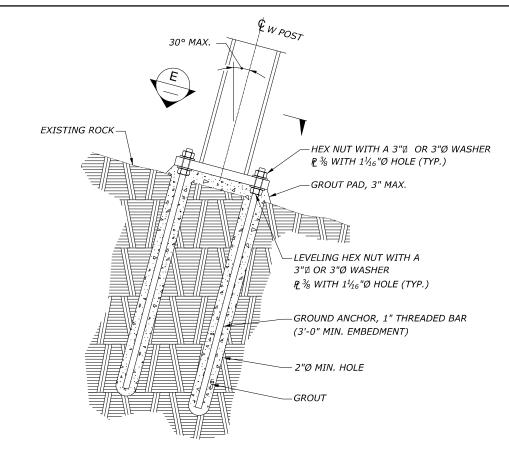
DATE

MSP2

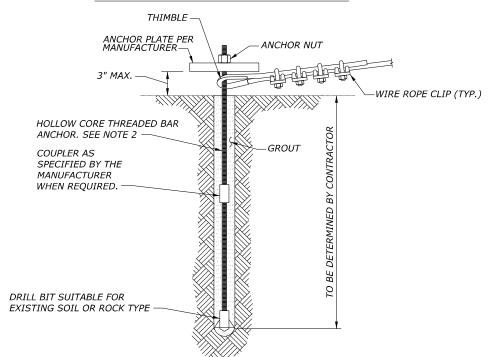
15 SHEETS

- 7. CAPACITY SHALL BE OBTAINED BY PROOF TESTING. SEE THE SPECIAL PROVISIONS.
- 8. MINIMUM SPACING BETWEEN ANCHORS IS EQUAL TO HALF THE EMBEDMENT LENGTH OF ROPE B ANCHOR.

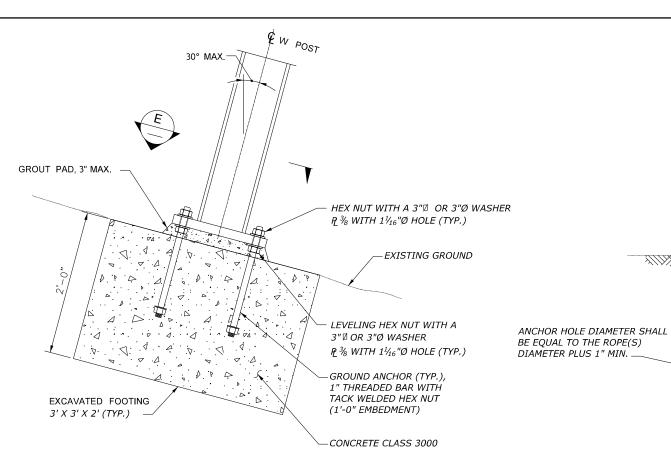




POST ANCHORAGE IN ROCK

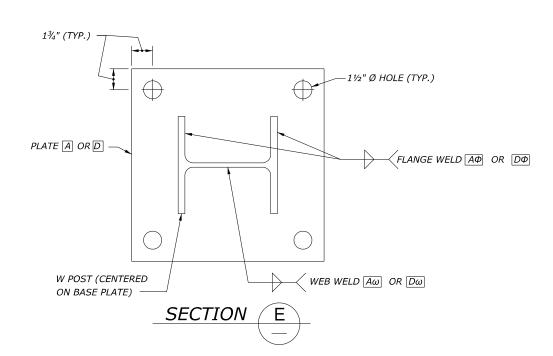


BAR ANCHOR

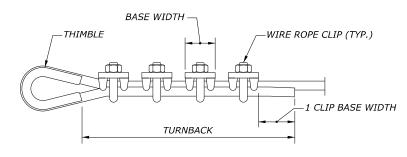


POST ANCHORAGE IN SOIL

- 1. USE ONLY FOR SOIL SLOPES NO STEEPER THAN 2H:1V (~28°).
- 2. SEE SHEET MSP4 FOR SOIL SLOPES 2H:IV AND STEEPER.



WIRE ROPE ANCHOR



-FERRULE

-WIRE ROPE CLIP (TYP.)

ANCHOR ROPE(S) (SEE NOTE 2)

-THIMBLES

-FERRULE

WIRE ROPE CONNECTION DETAIL

- 1. TURNBACK LENGTH AND NUMBER OF CLIPS PER MANUFACTURER'S SPECIFICATIONS TO DEVELOP WIRE ROPE CAPACITY.
- 2. FOLLOW MANUFACTURER'S APPLICATION INSTRUCTIONS.

NOTES:

- 1. FOR PLATE AND WELD SIZES, REFER TO THE TABLES ON SHEET MSP2.
- 2. ANCHOR ROPE(S) OR BAR SIZE SHALL BE ADEQUATE TO DEVELOP THE ULTIMATE ROPE ANCHOR CAPACITY LISTED ON SHEET MSP2.

FILE NAME	C:\Users\ChurcC\OneDrive - W	/ashIngton State Department of Transportation\Desktop\T	YPE 2 NETT	ING	SLOPE	PROTE	CTION DETAILS.dgn
BRIDGE DES ENG.	. Khaleghi, B.				REGION NO.	STATE	FED.AID PROJ.NO.
BRIDGE PROJ. ENG	G. Rosa, M.					WASH	
SUPERVISOR	Zeldenrust, R.					WASH	
DESIGNED BY	Swett, G.					UMBER	
ENTERED BY	Churchill, C.				22Y	015	
CHECKED BY	Dobrev, B.				CONTR	ACT NO.	LOCATION NO.
PROJ. ENGR.	Hooker, B.						
REGIONAL ADM.	Trepanier, T.	REVISION	DATE	BY			





DATE

US 12 WEST OF WHITE PASS REPAIR CABLE NET POST

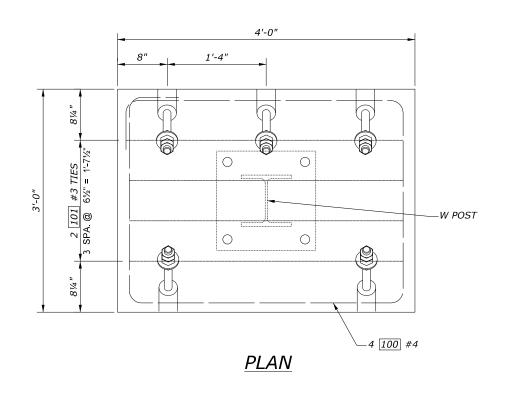
MODIFIED CABLE NET SLOPE PROTECTION SYSTEM DETAILS

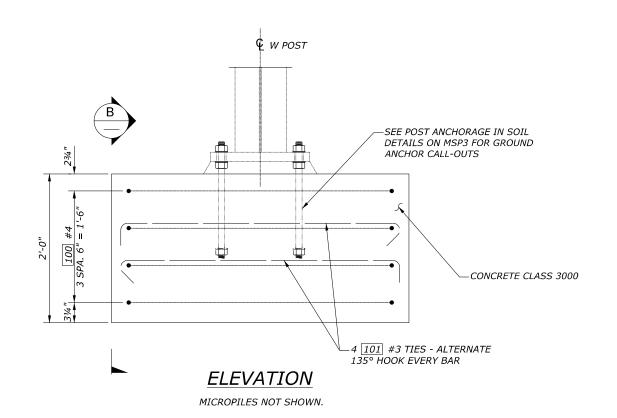
Plot 3

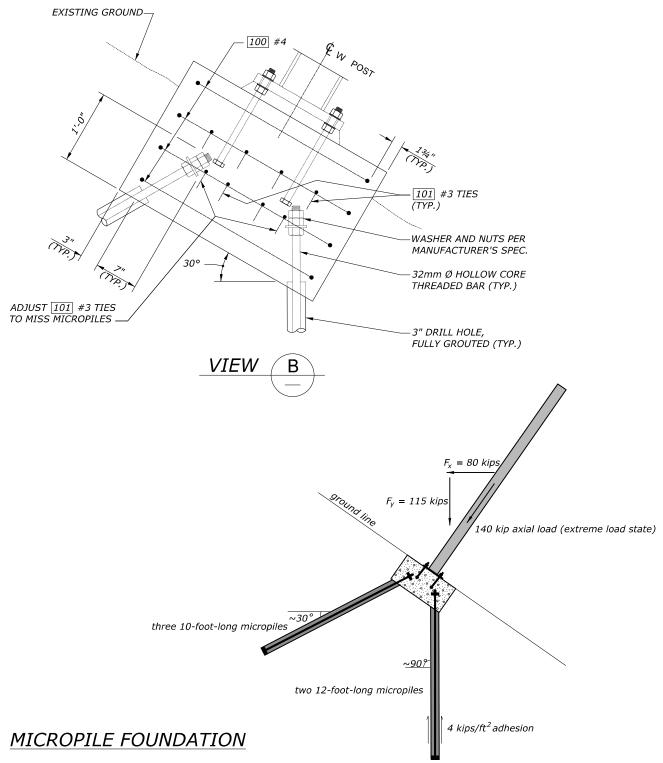
PLAN REF NO MSP3

15

TIME: 1:17:37 PMPLOTTED BY







- 1. USE FOUNDATION DESIGN FOR POST FOUNDATIONS SITED ON SOIL SLOPES 2H:1V (~28°) AND STEEPER, OR IF DIRECTED BY THE ENGINEER.
- 2. MICROPILES SHALL CONSIST OF A MINIMUM 32 MM DIAMETER (MIN. 0.556 SQ-IN NET AREA), HOLLOW CORE THREAD BAR WITH A MINIMUM 3-INCH DIAMETER, SACRIFICIAL DRILL BIT AND BE FULLY GROUTED. BAR SHALL BE FABRICATED FROM HEAVY WALL STEEL TUBING CONFORMING TO ASTM A519 OR A513.

DATE

FILE NAME	C:\Users\ChurcC\OneDrive - W	VashIngton State Department of Transportation\Desktop\	TYPE 2 NETT	ING	SLOPE	PROTE	CTION DETAILS.dgn	
BRIDGE DES ENG	. Khaleghi, B.				REGION	STATE	FED.AID PROJ.NO.	1
BRIDGE PROJ. EN	G. Rosa, M.					WASH		
SUPERVISOR	Zeldenrust, R.					WASH		
DESIGNED BY	Swett, G.				JOB N	-		10
ENTERED BY	Churchill, C.				22Y	015		
CHECKED BY	Dobrev, B.				CONTR	ACT NO.	LOCATION NO.	1
PROJ. ENGR.	Hooker, B.							1
REGIONAL ADM.	Trepanier, T.	REVISION	DATE	BY				



7	
Washington	

US 12 WEST OF WHITE PASS REPAIR CABLE NET POST State **Department of Transportation**

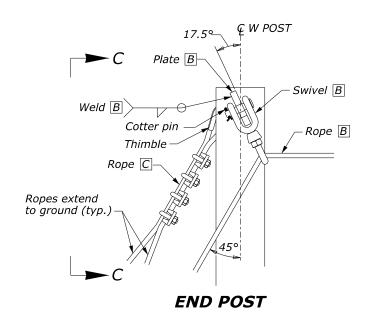
Plot 4

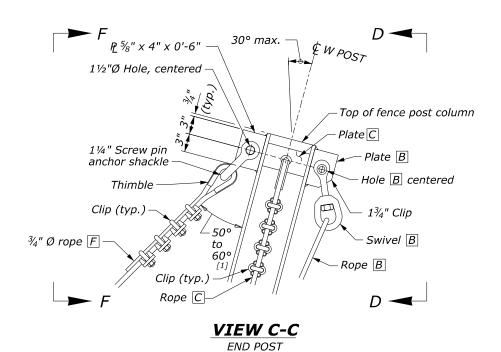
PLAN REF NO MSP4

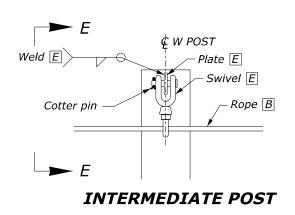
15 SHEETS

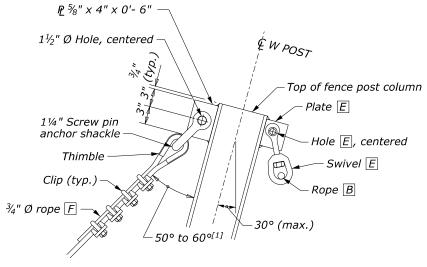
MODIFIED CABLE NET SLOPE PROTECTION SYSTEM DETAILS

DATE:5/18/2022 TIME: 1:17:38 PMPLOTTED BY ChurcC









VIEW E-EINTERMEDIATE POST

NOTE:

DATE:5/18/2022

[1] Angle must be the same for both rope \boxed{F} 's.

TIME: 1:17:40 PMPLOTTED BY

NOT TO SCALE

FILE NAME	C:\Users\ChurcC\OneDrIve -	WashIngton	State Departmen	nt of Transportation	on\Desktop\T`	PE 2 NET	ΓING	SLOPE	PROTE	CTION DETA	ILS.dgn	
BRIDGE DES ENG	. Khaleghi, B.							REGION NO.	STATE	FED.AID	PROJ.NO.	П
BRIDGE PROJ. EN	G. Rosa, M.								WASH			
SUPERVISOR	Zeldenrust, R.								WASH			
DESIGNED BY	Swett, G.								IUMBER			
ENTERED BY	Churchill, C.							22Y	015			
CHECKED BY	Dobrev, B.							CONTR	RACT NO.	LOCA	TION NO.	П
PROJ. ENGR.	Hooker, B.											
REGIONAL ADM.	Trepanier, T.		REV	ISION		DATE	BY	1				- 1





DATE

US 12
WEST OF WHITE PASS
REPAIR CABLE NET POST

MODIFIED CABLE NET SLOPE PROTECTION SYSTEM DETAILS

Cotter pin

11/4" safety pin
anchor shackle

¾" Ø Rope F

Rope Band F not shown for clarity

View applies to all posts. Ropes $\mathbb C$ and $\mathbb B$ not shown for clarity.

Plot 5

MSP5

10

15 SHEETS

VIEW F-F
APPLIES TO ALL POSTS

Ç W POST

45° to 60°

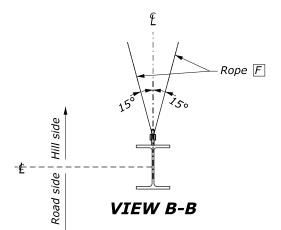
VIEW D-D

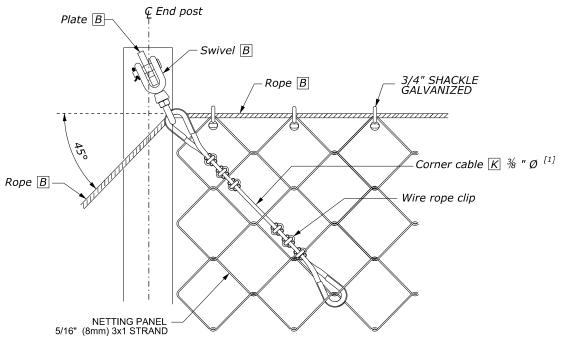
END POST

Ç W POST

Weld C

rope C

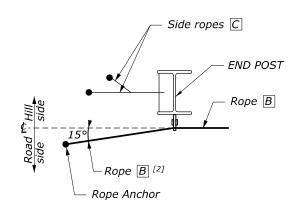




NETTING PANEL TO END POST CONNECTION

(MESH NOT SHOWN FOR CLARITY)

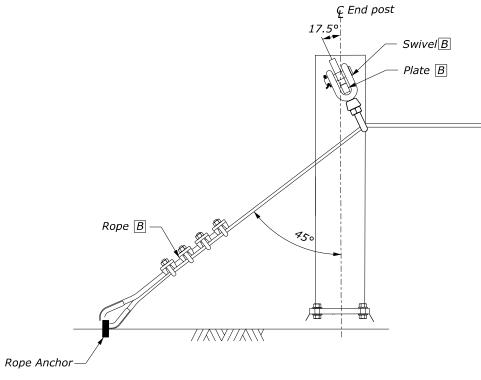
NOT TO SCALE



PLAN VIEW

SUPPORT ROPE B HORIZONTAL DEFLECTION ANGLE

NOT TO SCALE



SUPPORT ROPE B VERTICAL DEFLECTION ANGLE

NOT TO SCALE

NOTES:

- [1] Loop corner cable K through swivel B on the top end and through the 5th diagonal netting rhomboid on the other end.
- [2] Up to 15° horizontal deflection angle at the swivel.

FILE NAME	C:\Users\ChurcC\OneDrive - '	WashIngton State	Department of Tran	sportation\Desktop\T\	YPE 2 NET	TING S	SLOPE	PROTE	CTION DETAILS.	dgn	
BRIDGE DES ENG.	Khaleghi, B.						REGION NO.	STATE	FED.AID PF	OJ.NO.	ĺ
BRIDGE PROJ. ENG	G. Rosa, M.							WASH			١.
SUPERVISOR	Zeldenrust, R.							WASH			1
DESIGNED BY	Swett, G.						JOB N	-			\mathcal{U}
ENTERED BY	Churchill, C.						22Y	015			
CHECKED BY	Dobrev, B.						CONTR	ACT NO.	LOCATION	NO.	ĺ
PROJ. ENGR.	Hooker, B.										ĺ
REGIONAL ADM.	Trepanier, T.		REVISION		DATE	BY					ı



7
Washington State Department of Transportation
Department of Transportation

US 12
WEST OF WHITE PASS
REPAIR CABLE NET POST

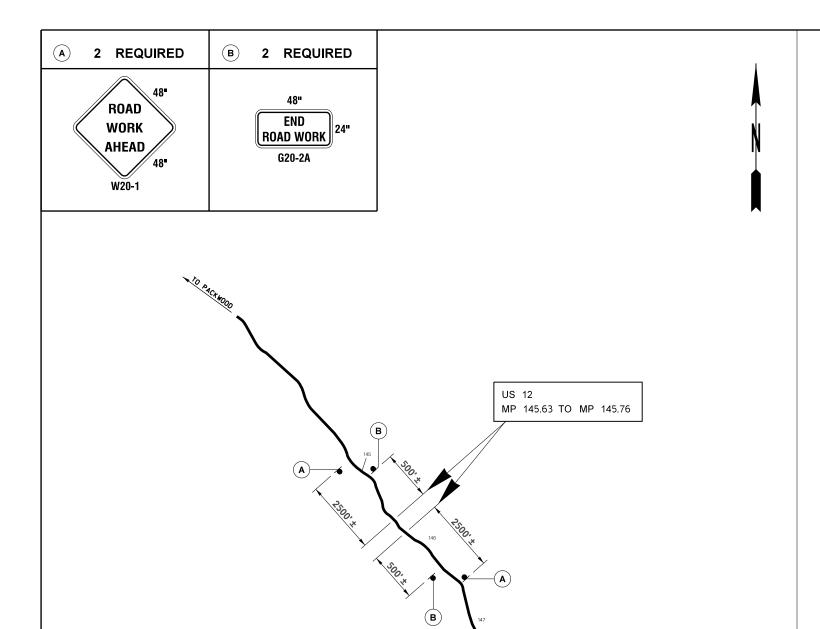
Plot 6

MSP6

SHEET
11
OF
15
SHEETS

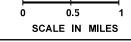
MODIFIED CABLE NET SLOPE PROTECTION SYSTEM DETAILS

DATE:5/18/2022 TIME: 1:17:41 PMPLOTTED BY ChurcC



GENERAL NOTES

- 1. ALL SIGNS SHALL BE 48" X 48" AND BLACK ON ORANGE, UNLESS OTHERWISE SPECIFIED.
- 2. FIELD LOCATE FLAGGING STATIONS AND TAPERS ON LEVEL GROUND WITH ADEQUATE SIGHT DISTANCE.
- 3. LOCATION OF PCMS TO BE DETERMINDED BY THE ENGINEER.

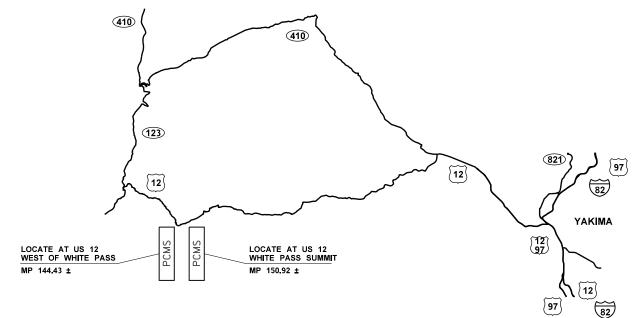


12

PCMS SAMPLE MESSAGE FOR ROAD CONSTRUCTION

PCMS								
1	2							
US 12 ROAD WORK	EXPECT DELAYS							
1.5 SEC	1.5 SEC							

FOR INFORMATION ONLY



LEGEND

PCMS

PORTABLE CHANGEABLE MESSAGE SIGN

Plot 11
PLAN REF NO
TC1

12 OF 15 SHEETS

0 5 10 SCALE IN MILES

FILE NAME	K:\452205\012\US12_Rock Slo	pe Net Repair\Design_CAD_Sheets\020-Vicinity\XL6374_f	PS_VM01.dgn						Τ
TIME	11:41:47 AM				REGION NO.	STATE	FED.AID F	PROJ.NO.	1
DATE	5/26/2022					WASH			ŀ
PLOTTED BY	thomasb				10	WASH			13
DESIGNED BY	T. RUTSCHILLING					UMBER			13
ENTERED BY	A. KOLZOW				22Y	015			Г
CHECKED BY	J. TRUDEAU				CONTR	ACT NO.	LOCATIO	ON NO.	1
PROJ. ENGR.	B. HOOKER								ı
REGIONAL ADM	T TREPANIER	REVISION	DATE	RY					П



Washington State Department of Transportation	
•	

DATE

US 12							
WEST	OF WHITE PASS						
REPAIR	CABLE NET POST						

CONSTRUCTION SIGNS CLASS A

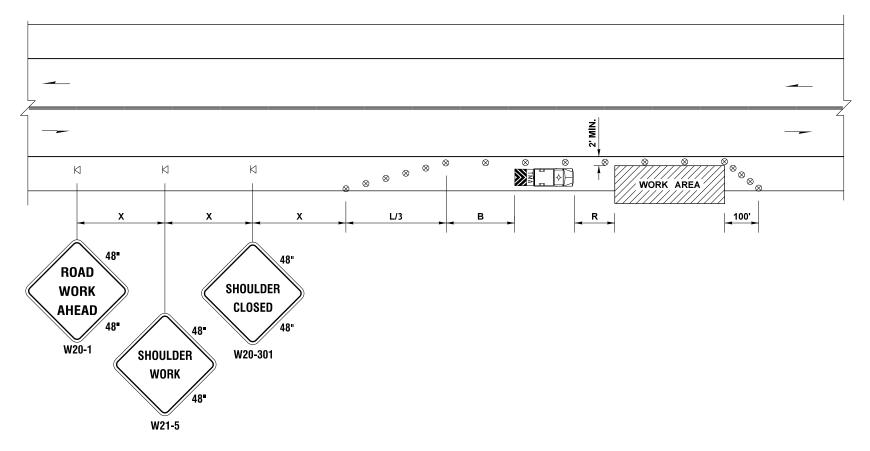
MINIMUM SHOULDER TAPER LENGTH = L/3 (feet)													
SHOULDER		Posted Speed (mph)											
WIDTH (feet)	25	30	35	40	45	50	55	60	65	70			
8'	-	-	-	-	120	130	150	160	170	190			
10'	-	-	-	-	150	170	190	200	220	240			
	USE A MINIMUM 3 DEVICES TAPER FOR SHOULDER LESS THEN 8'.												

SIGN SPACIN	NG = X (1)	
FREEWAYS & EXPRESSWAYS	55 / 70 MPH	1500'±
RURAL HIGHWAYS	60 / 65 MPH	800' ±
RURAL ROADS	45 / 55 MPH	500' ±
(1) ALL SPACING MAY BE ADJUSTED RAMPS, AT-GRADE INTERSECTIONS		INTERCHANGE

	CHANNELIZATION DEVICE SPACING (feet)								
MPH	TAPER	TANGENT							
50/70	40	80							
35/45	30	60							

BUFFER DATA											
LONGITUDINAL BUFFER SPACE = B											
SPEED (MPH)	25	30	35	40	45	50	55	60	65	70	
LENGTH (feet) 155 200 250 305 360 425 495 570 645 7										730	
TRANSPORT	TRANSPORTABLE ATTENUATOR BOLL AUGAR RIGIANISE R										

TRANSPORTABLE ATTENUATOR ROLL AHEAD DISTANCE = R HOST VEHICLE WEIGHT 9,900 TO 22,000 lbs. HOST VEHICLE WEIGHT > 22,000 lbs. < 45 MPH</td> 45-55 MPH > 55 MPH < 45 MPH</td> 45-55 MPH > 55 MPH 100' 123' 172' 74' 100' 150'



LEGEND

- ☐ TEMPORARY SIGN LOCATION

TRANSPORTABLE ATTENUATOR

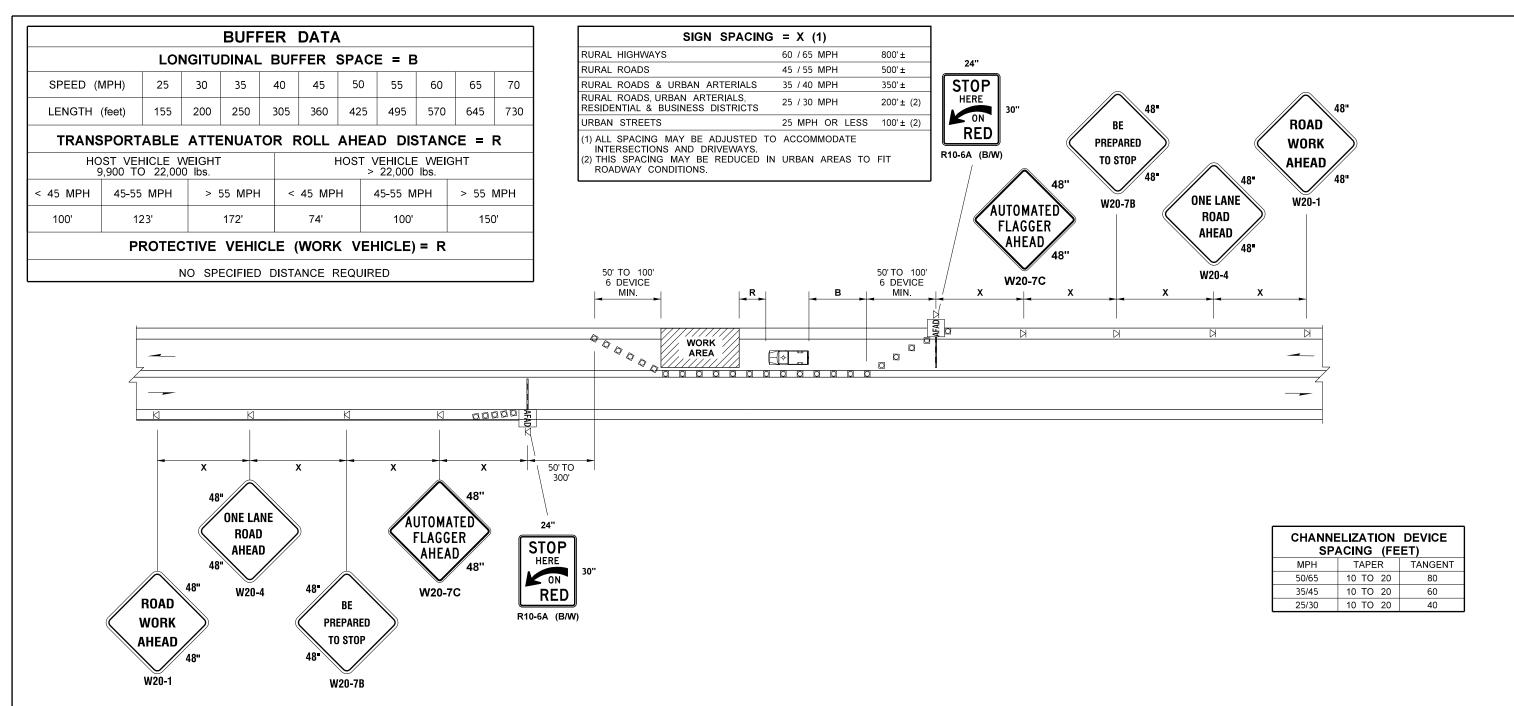
SHOULDER CLOSURE - HIGH SPEED

NOTES

- NO ENCROACHMENT IN TRAVELED LANE. IF ENCROACHMENT IS NECESSARY, LANE SHALL BE CLOSED.
- 2. DEVICE SPACING FOR THE DOWNSTREAM TAPER SHALL BE 20' (FT) O.C.
- 3. ALL SIGNS ARE BLACK ON ORANGE.

NOT TO SCALE

FILE NAME	K:\452205\012\US12_Rock Slo	ope Net Repair\Design_CAD_Sheets\020-Vicinity\XL6374	LPS_VM01.dgn		_					Plot 12
TIME	11:42:24 AM			REGION STA	FED.AID PROJ.NO.				US 12	PLAN REF NO
DATE	5/26/2022			10 WA	24					TC2
PLOTTED BY	thomasb			10 WA	20				WEST OF WHITE PASS	.02
DESIGNED BY	T. RUTSCHILLING			JOB NUMBER				Washington State	REPAIR CABLE NET POST	SHEET
ENTERED BY	A. KOLZOW			22Y015				_		13
CHECKED BY	J. TRUDEAU			CONTRACT N	LOCATION NO.			Department of Transportation		OF
PROJ. ENGR.	B. HOOKER					DATE	DATE	_	TRAFFIC CONTROL PLAN	15 SHEETS
REGIONAL ADM.	T. TREPANIER	REVISION	DATE	BY		P.E. STAMP BOX	P.E. STAMP BOX			SHEETS



LEGEND

AFAD AUTOMATED FLAGGER ASSISTANCE DEVICE

TEMPORARY SIGN LOCATION

CHANNELIZING DEVICES

PROTECTIVE VEHICLE

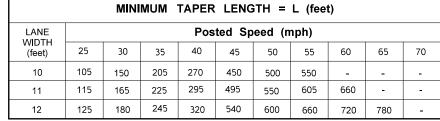
PILOTED ONE-LANE, TWO-WAY TRAFFIC CONTROL WITH (RED/YELLOW LENS) AUTOMATED FLAGGER ASSISTANCE DEVICES

NOT TO SCALE

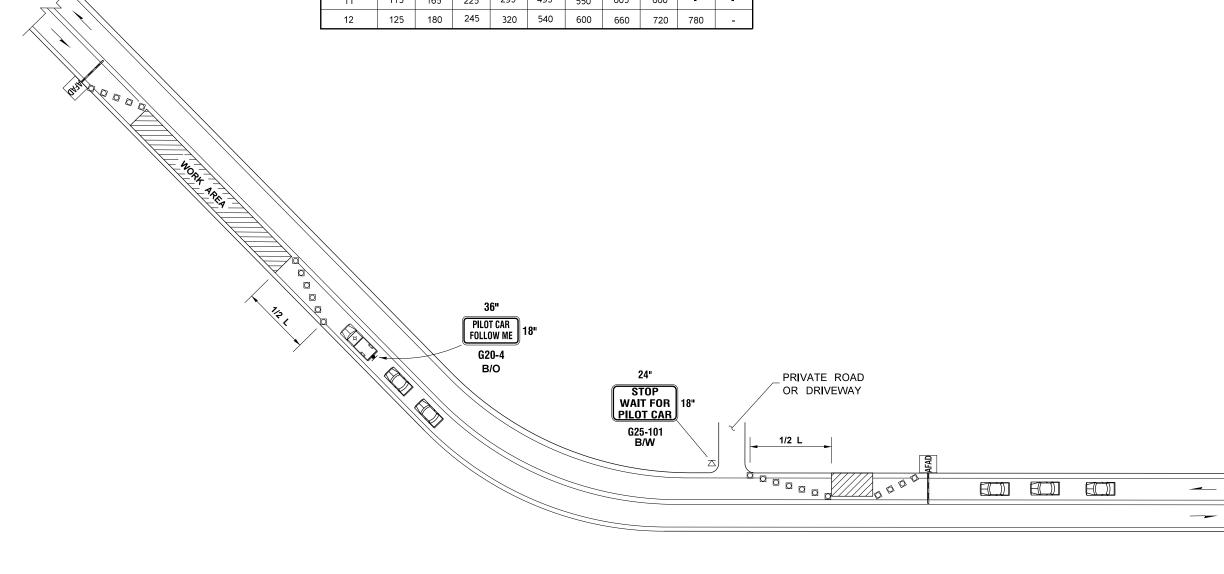
NOTES

- 1 ALL SIGNS ARE BLACK ON ORANGE.
- 2. EXTENDING THE CHANNELIZING DEVICE TAPER ACROSS SHOULDER IS RECOMMENDED.
- 3. NIGHT WORK REQUIRES ADDITIONAL ROADWAY LIGHTING AT FLAGGING STATIONS. SEE THE STANDARD SPECIFICATIONS FOR ADDITIONAL DETAILS.

FILE NAME	K:\452205\012\US12_Rock Slop	pe Net Repair\Design_CAD_Sheets\020-Vicinity\XL6374	1_PS_VM01.dgn							Plot 13
TIME	12:49:37 PM			REGION STAT	FED.AID PROJ.NO.				US 12	PLAN REF NO
DATE	5/31/2022			10 WAS						TC3
PLOTTED BY	richaja			I IO WA	20				WEST OF WHITE PASS	.03
DESIGNED BY	T. RUTSCHILLING			JOB NUMBER				Washington State	REPAIR CABLE NET POST	SHEET
ENTERED BY	A. KOLZOW			22Y015				3		14
CHECKED BY	J. TRUDEAU			CONTRACT NO	LOCATION NO.			Department of Transportation		OF
PROJ. ENGR.	B. HOOKER					DATE	DATE	-	TRAFFIC CONTROL PLAN	15 SHEETS
REGIONAL ADM.	. T. TREPANIER	REVISION	DATE	BY		P.E. STAMP BOX	P.E. STAMP BOX			SHEETS



CHANNELIZATION DEVICE SPACING (feet)							
MPH	TAPER	TANGENT					
50/65	40	80					
35/45	30	60					
25/30	20	40					



LEGEND

AFAD AUTOMATED FLAGGER ASSISTANCE DEVICE

⋈ TEMPORARY SIGN LOCATION

CHANNELIZING DEVICES

PILOT VEHICLE

MOTORIST VEHICLE

PILOT CAR OPERATION WITH (RED/YELLOW LENS) AUTOMATED FLAGGER ASSISTANCE DEVICES

NOTES

- 1. REFER TO SHEET TC1 FOR ADDITIONAL SIGNING DETAILS NOT SHOWN.
- 2. CHANNELIZING DEVICES ARE REQUIRED ALONG CENTERLINE TO SEPARATE TRAFFIC FROM WORK OPERATION. DEVICES ARE REQUIRED AT TAPERS TO SHIFT TRAFFIC MOVEMENT BETWEEN LANES.
- 3. SIGN G25-101 IS REQUIRED FOR NON-STOP SIGN CONTROLLED APPROACHES SUCH AS PRIVATE ROADS AND DRIVEWAYS. THIS SIGN IS NOT REQUIRED TO BE ALUMINUM SUBSTRATE AND CAN BE MADE OF ALTERNATIVE MATERIALS.

NOT TO SCALE

FILE NAME	K:\452205\012\US12_Rock Slope N	let Repair\Design_CAD_Sheets\020-Vicinity\XL637	74_PS_VM01.dgn							Plot 14
TIME	12:39:29 PM			REGION STATE	FED.AID PROJ.NO.	1			US 12	PLAN REF NO
DATE	5/31/2022			10 WASH						TC4
PLOTTED BY	richaja			10 WASH					WEST OF WHITE PASS	
DESIGNED BY	T. RUTSCHILLING			JOB NUMBER				Washington State	REPAIR CABLE NET POST	SHEET
ENTERED BY	A. KOLZOW			22Y015				J		15
CHECKED BY	J. TRUDEAU			CONTRACT NO.	LOCATION NO.			Department of Transportation		OF
PROJ. ENGR.	B. HOOKER					DATE	DATE	_	TRAFFIC CONTROL PLAN	15 SHEETS
REGIONAL ADM.	T. TREPANIER	REVISION	DATE	BY		P.E. STAMP BOX	P.E. STAMP BOX			I STILLIS